

NEWS BRIEFS

Accounting for Contractors on the Battlefield

Having contractors on the battlefield is not a new concept. In fact, the military has been using contractors since the American Revolution. As recently as *Operation Iraqi Freedom* (OIF), DOD civilian employees and contractors are providing more combat support and combat service support functions than ever before. This is partly because of the downsizing of the military following *Operation Desert Storm* and the growing need for contractors to provide initial or lifetime support for high-tech weapon systems. Contractors are also being used for activities ranging from laundry services and aircraft maintenance to satellite tracking and data acquisition.

With the increased use of contractors in garrison and contingencies, the Army recognized the need to account for its contractors and their movements. Thus, the Army Materiel Command Logistics Support Element-Southwest Asia (AMC LSE-SWA) took the lead to create a contractor coordination cell (3-C) to help account for Army contractors in support of the Coalition Forces Land Component Command (CFLCC) and their movements during *OIF*.

"The number of contractors on the battlefield in this theater of operation is more than 4,500, and I believe we have captured about 85 percent of the total number," said 3-C Chief Rudy Chavez. More than 160 companies are represented, most of which are in Kuwait and Iraq. Personnel numbers range from more than 1,000 to as few as 6 employees to a company.

Chavez stated that contractors need support, not management. He added that they look for structured and communicated policies and well-defined rules of engagement to focus on mission accomplishment, which is the key to mission success.

Contractors seem to like the new accountability cell. Jim Halbert, Area Manager for the Logistics and Environmental Support Corp. Inc. (LESCO), said that the new cell gives him a single point of contact if he needs assistance. In the past, he had to run around to find the person with the right answers. LESCO has 15 employees in Kuwait and Iraq performing maintenance and logistics work for the U.S. Army Forces Command to support the Biological Integrated Detection Systems. Halbert said that the 3-C team solved LESCO's passport and visa issues as well.

"Using contractors on the battlefield is a plus because in some cases, we have not planned, prepared or identified other resources or capabilities within DOD. These contractors are an asset who can be used quickly and have the necessary expertise and, in some cases, the tools and parts," said Chavez.

In addition to his duties as 3-C Chief, Chavez is a Logistics Assistant Representative (LAR) with AMC and has supported Army exercises and contingency operations in the Balkans, Egypt and at the National Training Center (NTC) at Fort Irwin, CA. In explaining the history of 3-C, Chavez said that he noticed the high number of civilian participants during these exercises and wondered what management office accounted for all the contractors, especially with the 4th Infantry Division Capstone Exercise in 2001.

Chavez said that the logistics assistance office for the 4th Infantry Division supported unit equipment readiness with about 25 LARs, but units training on the new digital systems required a larger number of contractors. After observing that contractor accountability was nearly nonexistent, it was recommended that tactical commanders on the ground have a single agent to account and control movement of contractors.

These lessons learned resulted in AMC taking the lead to account for contractors during Millennium Challenge, a joint exercise at NTC. AMC put together a support operations cell that integrated with the companies to coordinate and monitor movement of the contractors supporting the exercise. The support cell also had a help desk that quickly solved many system problems via telephone or



telemaintenance, which is a video-communication process. Chavez's team quickly recognized that a contractor support cell was critical to the mission's success and recommended expansion of a support operations cell to each of the logistics assistance offices and logistics support elements in garrison and during contingencies.

In December 2002, BG Vincent Boles, Commanding General, AMC LSE-SWA, took the lead in establishing guidelines for contractor accountability, and 3-C was created in early February 2003.

A team of six Army civilians began the contractor accountability work and quickly expanded to a five-computer network system. The team identified shortfalls in contractor accountability at the CONUS Replacement Center (CRC) and at the Air Port of Debarkation (APOD). As a result, a 3-C representative was placed at the CRC and the APOD to coordinate advance contractor movement processes with the logistics assistance office.

The team also surveyed contractors in theater at the Army and Air Force Exchange Service, the dining facilities and the health clinic and "shook the bushes" to validate accountability. The team's analysis showed that one-third of those surveyed were not listed in any database. A 3-C representative was also sent with each one of the six logistics support elements in Iraq to work with the unit's personnel office. Contractor personnel status reports were provided to the 3rd Personnel Command and the 377th Theater Support Command Personnel Office through AMC LSE-SWA's personnel office.

The 3-C team used CFLCC's contractor on the battlefield policy to leverage data. The policy outlines the applicability, definitions, responsibilities and procedures for requesting, processing, tracking and accounting for U.S. contingency contractors supporting CFLCC operations and/or systems.

The 3-C team also worked with a program management cell from the Office of the Assistant Secretary of the Army for Acquisition, Logistics and Technology located at Camp Doha. This cell was responsible for working contractor deployment processes and coordinating accountability of contractors with AMC LSE-SWA. The 3-C team used many of the program management cell accountability processes to develop its own.

AMC's 3-C also used the Civilian Tracking System (CIVTRACKS), a Web-based tool for maintaining accountability of civilian personnel deployed to a theater of operations. To establish accountability, contractor employees must report to the appropriate reception station when arriving in-theater. CIVTRACKS is a good accountability program, but to be effective, it must be a mandatory requirement in statements of work.

The 3-C team also issued chemical protective suits, protective masks, helmets and body armor and assisted contractors with the immunization process. The biggest challenges were the legal interpretations of immunization and visa requirements. The team became the contractor's support element by helping them to complete deployment requirements.

Chavez concluded that the 3-C structure and foundation is important to both the Department of the Army and AMC. In addition, if the lessons learned are written in doctrine, it will improve contractor on the battlefield accountability and movement processes.

This article was written by Bob Whistine, a Public Affairs Officer (PAO) for AMC's Joint Munitions Command (provisional) who previously served as the PAO, AMC LSE-SWA.

ECBC Demonstrates Air Filtration System

On July 28, 2003, the U.S. Army Edgewood Chemical Biological Center (ECBC), Aberdeen Proving Ground, MD, unveiled a new air filtration system that promises improved protection for both warfighters and civilians. The system is the first of its kind designed to protect against biological and chemical agents as well as toxic industrial chemicals. It uses regenerative filters that do not require renewal like conventional filters. Because of the system's low-maintenance and environmental adaptability, it has many possible military and homeland defense applications.

Developed by ECBC under a Cooperative Research and Development Agreement with Domnick Hunter Ltd., the Chemical Biological (CB) Regenerative Air Filtration System can be installed in shelters, buildings, vehicles, ships or anywhere protection is needed against chemical or biological warfare agents.



The CB Regenerative Air Filtration System (example at inset) can be integrated into future generations of military equipment such as this Abrams tank.

Currently in the testing phase, the CB Regenerative Air Filtration System is completely modular, scalable and multipurpose. Equipped with two filter beds, the self-cleaning system absorbs chemical and biological agents and toxic industrial chemicals with one filter bed while simultaneously cleaning the other filter bed with high-pressure, high-temperature air. The self-contained cleansing process and automatic rotation of filters eliminates the need for regular filter changes and associated system shutdown and

minimizes the logistics footprint for operators. The CB Regenerative Air Filtration System will be able to operate maintenance-free for extended periods.

ECBC is the Army's principal research and development center for chemical and biological defense technology, engineering and services. For information about ECBC, go to <http://www.ecbc.army.mil> or call (410) 436-3610.

Future Warrior Returns With Changes

Nothing works on Future Warrior, and that's the way it's supposed to be. The uniform ensemble, first assembled in 1999 at the U.S. Army Soldier Systems Center, Natick, MA, was redesigned for 2003 to better depict technology decades from reality for soldiers.

While the Objective Force Warrior (OFW) soldier weapon platform prepares for fielding within the decade, Future Warrior is set apart as a mostly visionary tool for researchers, said Cheryl Stewardson, Integrated Protection Functional Area Leader for the Natick Soldier Center's OFW program.

Future Warrior was reintroduced at the May 22, 2003, opening of the Institute for Soldier Nanotechnologies, a new partnership between the Army and Massachusetts Institute of Technology (MIT). The Army wanted to showcase now the concepts it is working on for the future. Seeing those concepts on a human form helps determine how technologies might be used and their limitations.

During the past 3 years, scientists and engineers have experimented with concepts to determine their feasibility with OFW. What's out of bounds for OFW ended up on Future Warrior.

Looking menacing in an all-black, custom-fit uniform from head to toe, Future Warrior is portrayed by Sgt. Raul Lopez, Liaison Sergeant with the Operational Forces Interface Group. Replacing the modified motorcycle helmet used in the previous Future Warrior concept, the custom-designed helmet Lopez

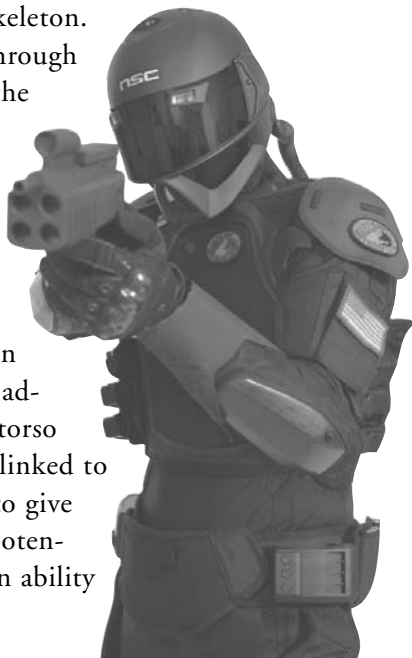
wears is leaner and incorporates several features representing upcoming technology. A blue-tinted visor signifies agile eye protection against tunable lasers, while inside a new projection display technology based on the Joint Strike Fighter helmet is now more accurately shown.

Although there are sensors available now for thermal and image intensification, making them small enough, fusing the images and projecting them onto the visor was a real leap. Openings at the top of the helmet fit in with the idea of a 3-D audio and visual sensor suite. They restore natural hearing lost in an encapsulated space and enhance long-range hearing. Cameras enhance vision from the sides and behind. A smaller halo on the helmet represents a tracking system for friendly and enemy forces. By reshaping the helmet, Future Warrior has an expanded field of view.

Protection against chemical and biological agents is more realistic with a respirator tube that attaches to the back of the helmet and connects to a low-profile air purifier that forces cool air into the helmet for comfort and visor defogging. "It was envisioned to come down very sleek into the body," Stewardson said, "but we couldn't find a material to do it in the short time we had to put this concept prototype together."

Another major change in the uniform is the addition of protruding, interconnecting black plastic pieces on the legs that represent a lower-body exoskeleton. It will connect through the boots up to the waist and enable the wearer to carry up to 200 pounds.

Above the waist, MIT's research on nanomuscles for advanced arm and torso strength may be linked to the exoskeleton to give Future Warrior potentially superhuman ability to move or carry.



A flexible display on the forearm of Future Warrior glows when switched on and draws attention to the simulated touch-screen keypad for information input and output for tasks such as navigation, physiological status monitoring and command communication. The display is connected into a compact computer worn on an armored belt around the waist.

Attached to the arm is a slim box representative of the remote control unit for any system that might be used, such as a robotic mule or unmanned aerial vehicle.

Found near the top of the torso front and back are what look like quarter-sized buttons built into the fabric depicting a nanostructure sensor array to detect weapons of mass destruction, friendly or enemy lasers or weather.

"The sensors could trigger a response in the uniform to open or close the fibers depending on temperature or precipitation," Stewardson said.

Black was chosen as the color to clue observers that it's the future, she said, although the aim is for a uniform that's invisible. Speaking of stealth, much of the futuristic capability can't be shown at least in part because of nanotechnology.

Along the black stretch fabric are custom-fitted plastics and foams that take the place of liquid body armor that will instantly solidify when struck. "All the parts are much harder than we wanted. We haven't figured out how to portray (liquid armor)," Stewardson said.

Through nanotechnology, multifunctional materials will be able to transport power and data. The materials will also be able to fend off chemical and biological agent attacks, self-decontaminate and become waterproof.

"I believe nanotechnology is going to give us much more than we can even envision today. This is just a sampling," Stewardson said.

In many ways, the revised Future Warrior is the same. A microturbine will provide power for items such as the microclimate conditioning system for heating and cooling.

The weapon remains a fire-and-forget system using soft-launch seeking missiles. A transdermal nutrient delivery system provides the nourishment to get through a battle. It's still going to be a moving target for researchers, shedding workable technology for the next greatest thing.

"There's always going to be a Future Warrior," Stewardson said. "In the soldier business, you can never rest on your laurels. Somebody is always out there to beat you."

For more information regarding the Soldier Systems Center, go to <http://www.natick.army.mil>.

Auto-ID to Transform Military Logistics

Information never before obtained about supplies and equipment will be available to the military through the next generation of Radio Frequency Identification (RFID) technology known as Auto-ID.

The DOD Combat Feeding Directorate at the U.S. Army Soldier Systems Center, Natick, MA, has joined nearly 100 companies and 5 international research universities as sponsors of the Auto-ID Center founded in 1999 at the Massachusetts Institute of Technology (MIT).

The center is developing technology based on non-proprietary, global standards that will create an affordable solution for the Defense Department and commercial industry worldwide. The Combat Feeding Directorate calls this initiative "Global Asset Visibility." Auto-ID will automate the global supply chain.

The Universal Product Code, a bar code of lines and numbers used to identify objects, has existed since the 1970s for logistics management, but the technology is limited.

During *Operation Desert Storm*, the military did not know what was in 25,000 of the 40,000 containers sent overseas. Containers today can be tracked with RFID tags, which have greatly improved the logistics situation for *Operations Enduring Freedom* and *Iraqi*

Freedom. Still, Auto-ID offers more. Tags with microchips are now seen in all kinds of products. Industry sees RFID as a replacement for the bar code, and Auto-ID takes it a step further.

The technology is based on the Electronic Product Code (EPC), a 96-bit code capable of identifying more than 80 thousand trillion, trillion unique items. An electronic tag containing an EPC on a microchip wirelessly stores and transmits data to a reader. The EPC serves as an address directing users to an Internet site where managed levels of information on the item are found.

Information retrieval is possible using the Object Naming Service, which associates the EPC with an item. It points to a server that uses the Physical Mark-Up Language to distribute and represent related information such as shipping instructions, inspection schedules, location, expiration dates or technical manuals. Savant software technology manages data flow and provides an interface to legacy systems.

Auto-ID will provide real-time visibility. Accurate automated inventories will eliminate the need for manual counts, which ultimately reduces the supply chain footprint and associated costs.

Furthermore, EPC tags will allow automatic manifests to be written to containers. In addition, sensor integration will provide the capability to monitor the status of an item, pallet or container by detecting variables such as temperature, vibration, rough handling or chemical or biological contamination that could affect product quality. Initially the tags will be used to track rations, but may eventually be used to track vaccines, medical supplies and other temperature-sensitive items.

One possible use for the technology is reading a temperature profile from a container or pallet tag that translates complicated data using a shelf-life model, developed by MIT for the Combat Feeding Directorate. The model will allow food inspectors to determine the condition of Meals, Ready-to-Eat or Unitized Group Rations using a simple, color-coded system — green for "issue," yellow for "limited inspection" and red for "100-percent inspection."

Corporations plan to track items such as disposable razor blades or laundry detergent bottles, but the Combat Feeding Directorate is interested in tracking at the case, pallet and container level.

The Combat Feeding Directorate is conducting DOD's first Auto-ID technology demonstration this fall at the Defense Distribution Depot, San Joaquin, CA. Other participants include Alien Technology Inc., OatSystems Inc., the Defense Logistics Agency (DLA) and Oak Ridge National Laboratory.

The demonstration will simulate rations being tracked from an assembler or depot to general and direct support supply points in a field setting with distribution to individual units. Preliminary testing and a shakedown were conducted in the spring, and follow-up testing for the fall demonstration is ongoing.

Demonstration goals are automatic, real-time tracking and visibility at the supply points; automatic inventories to units issued; capturing historical product temperature data; and automatic tracking and updates of container inventories.

Results and lessons learned from the demonstration will help set the framework for a proposed 2005 DLA Advanced Concept Technology Demonstration (ACTD). Additionally, EPC technology is proposed as an expansion of a current Navy-conducted RFID ACTD.

Although combat rations are the demonstration product, any military item, including ammunition and spare parts for vehicles, can be tracked under the program to help warfighters ultimately get what they need when they need it most.

For more information about the Combat Feeding Directorate and the Soldier Systems Center, go to <http://www.natick.army.mil>.

Keeping Warfighters Warm

Trigger fingers, as well as the rest of the hands, will be ready to react wrapped under the Modular Glove System

developed by the Special Operations Forces (SOF) Special Projects Team at the U.S. Army Soldier Systems Center, Natick, MA.

Project Officer Stephanie Castellani said that the glove system brings a significant change in hand protection to the SOF community. She said it's a great improvement because the SOF branches have never had anything baseline that they've all agreed to, and the system lays the groundwork for future improvements with new materials and technology.

Most importantly, the gloves pass the "trigger test." Equipment Specialist Richard Elder said that function is the first priority because soldiers must be able to manipulate their weapon systems. He said that safety used to be the primary concern, but if soldiers can't shoot, they'll toss their gloves for something else. Special operators will no longer need to buy gloves on the commercial market to find a product that works for them.

Starting as a science initiative in 2001, the program later transitioned to a fielding initiative. During testing, special operators from different services wore the modular gloves while mountaineering, skiing and snowshoeing on a glacier in Alaska.

Eight companies submitted a glove system through the Small Business Innovative Research Program, but the glove system from Outdoor Research in Seattle, WA, was chosen. It's composed of a Nomex® contact liner, intermediate wet/dry glove and extreme wet/dry glove with a removable insulation liner. Comfort ranges from minus 20 F to 45 F depending on which individual glove or combination is worn. In all, there are five ways to dress with the glove system.

The Nomex contact liner was designed for the first layer. It's constructed of a Malden Mills Polartec® Power Stretch® fleece with Nomex. In addition, Pittards PLC soft, flame-resistant leather lines the palm and fingers, providing a lightweight, flexible glove with an acceptable grip and abrasion resistance. It is good alone at temperatures above 40 F or when handling hot weapons.

The intermediate wet/dry glove worn with or without the Nomex contact liner protects from 10 F to 45 F. Except for the palm, the glove's shell is made with three types of Cordura® Gore-Tex® laminate materials for waterproofing

and windproofing while providing moisture vapor transfer and abrasion resistance. Alpen-Grip, a proprietary polymer material with a slightly rubbery feel is used for the palm to complete waterproofing and high-abrasion resistance while retaining flexibility. Attached inside the glove is a waterproof liner coated with brushed polyester to improve moisture wicking. Even when the intermediate glove is worn over the contact liner, tactility is still acceptable. This is partly because of the glove's shape (curved fingers and tapered fingertips).

In colder climates, the extreme wet/dry glove protects from minus 20 F to 20 F worn in combination with the Nomex contact liner or intermediate glove.

The same AlpenGrip palm with Cordura Gore-Tex material for the shell, waterproof liner with brushed polyester coating and curved, "box-cut" fingers with an articulated thumb for dexterity are found in the extreme glove.

What's different is a lengthened top portion of the shell to protect the wrists and a removable Moonlite Pile insulating insert. Pocket heaters can be placed into either the intermediate or extreme glove, but the extreme glove insert has a pocket on top designed specifically for that purpose. The extreme glove also uses hook and loop fasteners at the wrist and forearm for a snug fit.

It's a bit bulkier, but the additional bulk is needed for the extra warmth. Fielding of the modular glove system was scheduled to begin with the 10th Special Forces Group at Fort Carson, CO, in September 2003. The glove system will be sold commercially, enabling conventional forces to purchase the item.

For more information about the Modular Glove System and Soldier Systems Center, go to <http://www.natick.army.mil>.

Fort Irwin's Electrical System Privatization

In response to a DOD-mandated initiative, Fort Irwin, CA, embarked on the journey to privatize its electrical system. On Dec. 2, 2002, after several months of analysis and hard work, Fort Irwin's negotiation team

of representatives from the National Training Center's (NTC's) Acquisition Command (Army Contracting Agency Southern Region (ACA-SR)), Directorate of Public Works (DPW), Staff Judge Advocate, U.S. Army Corps of Engineers Los Angeles District, and consulting firm Bearing Point conducted negotiations with Southern California Edison (SCE). Upon completion of negotiations, a final agreement was reached.



Alan J. Fohrer, CEO Southern California Edison, presents BG Joseph F. Fil Jr., NTC/Fort Irwin Commanding General, a plaque during a visit to Fort Irwin earlier this year.

On March 31, 2003, on Fort Irwin's behalf, the NTC Acquisition Command and SCE signed a 50-year contract to privatize the Fort Irwin electrical system, which incorporated an innovative approach to be used with the resulting credit. The \$8.5 million credit will be used over the 50-year period to upgrade the current electrical system, which is inadequate. The credit will be used to fund more than a dozen sorely needed projects (estimated at \$3.5 million) and used by the installation to offset the cost of SCE's annual added facility charge. These upgrade projects will improve Fort Irwin's electrical system by bringing it up to state and federal standards while simultaneously making it more cost efficient to operate. This innovative approach of using a credit to fund electrical projects and to offset a contractor's annual added facility charge is the first of its kind. In fact, several other organizations, including the Office of the Secretary of Defense, desire to model their electrical system privatization process after Fort Irwin's.

SCE was scheduled to take full responsibility for ownership, operation, maintenance and repair of the

electrical system on Aug. 1, 2003. The sale of the electrical system will allow vast improvements, including replacing poles and redoing the military substations and meter-switch cabinets. These upgrades will save Fort Irwin about \$178,000 the first year and \$545,000 each subsequent year for the remainder of the 50-year contract.

SCE, based in Rosemead, CA, is working with the military at several Navy and Marine Corps bases. However, this service agreement will be the first for SCE under the new privatization mandate. Once SCE takes over, the upgrades and improvements should be completed within 15 months. All work will be handled from the SCE Barstow office; however, during the first few years of the contract, representatives will be on post 5 days a week. In addition, the current installation support services contractor, Johnson Controls Inc. (JCI), will continue to receive all work orders and determine if the work requires SCE to be contacted. SCE hopes to make a seamless transition and anticipates no adverse effects to Fort Irwin residents.

On April 24, 2003, the NTC Acquisition Command hosted a very successful Electrical Privatization Kick-off Meeting. The purpose of this meeting was to coordinate and facilitate the transfer of ownership between Fort Irwin and SCE. In attendance were representatives of NTC's ACA-SR, DPW, SCE and JCI. During the meeting's morning session, teaming efforts began on behalf of all parties, which allowed the team to cover a number of issues and answer any new questions. In keeping with the teaming concept, follow-on meetings began in May as part of the efforts to ensure the lines of communication remain open.

In essence, Fort Irwin's privatization efforts have, by use of the \$8.5 million credit to offset the annual facilities cost, improved Fort Irwin's electrical system and provided the ability to fund more than a dozen needed projects. This innovative approach maximizes the best overall value for the National Training Center to continue to meet its mission.

AWARDS

ECBC's Emanuel Receives TOYA Award

Dr. Peter Andrew Emanuel, a Scientific Advisor for the U.S. Army's Edgewood Chemical Biological Center (ECBC), Aberdeen Proving Ground, MD, was named one of this year's Ten Outstanding Young Americans (TOYA). The U.S. Junior Chamber will present the awards at a ceremony in Anaheim, CA, held in conjunction with its annual meeting. The TOYA Awards Program recognizes young people who are the best, brightest and most inspirational leaders in America.

Emanuel began his career as a National Research Council fellow focused on developing humane alternatives to animal use in making antibodies for pathogen detection kits. As an ECBC Scientific Advisor, he continued his work and developed expertise in polymerase chain reaction (PCR) detection of biological warfare agents, resulting in more than 150 PCR tests being used by DOD.

A central theme of his scientific career has been to protect the nation by bringing the best research out of the lab and into the field. In 1998, he began building the Critical Reagent Repository (CRT) to archive and distribute all the detection reagents used to identify biological warfare agents. In 2002, he became Program Director of the nationwide program. Working together with other biodefense community members, he has helped accelerate the introduction of new technologies and foster increased scientific interchange.

He has been active in training soldiers and mentoring young scientists. Interactions with troops in the field led to the development of the Biological Sampling kit, which filled a need for hazardous material teams and has been patented and commercially licensed for the first-responder community.